Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of:	)	
	)	
Radwin, Ltd. Petition for Rulemaking Regarding Amendment of Part 15 of the Commission's Rules to Allow Higher Power Operation for P2MP, consistent with the P2P System Power Limits	)	RM-11812

COMMENTS OF
THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

The National Public Safety Telecommunications Council (NPSTC) submits these comments in response to the Public Notice regarding the above captioned proceeding.[1] Radwin, Ltd. requested that the Commission initiate a rulemaking to modify the rules for Part 15 unlicensed systems. Radwin requests that the power levels for point-to-multipoint unlicensed systems be modified to be consistent with those for unlicensed point-to-point systems. In these comments, NPSTC sets forth some areas that need further exploration and recommends the Radwin request be considered jointly with other issues recently raised regarding unlicensed spectrum.

[1] Public Notice, *Consumer Governmental Affairs Bureau Reference Information Center Petition for Notice of Inquiry* Report No. 3097, released June 29, 2018.

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The National Public Safety Telecommunications Council

The National Public Safety Telecommunications Council is a federation of public safety organizations whose mission is to improve public safety communications and interoperability through collaborative leadership. NPSTC pursues the role of resource and advocate for public safety organizations in the United States on matters relating to public safety telecommunications. NPSTC has promoted implementation of the Public Safety Wireless Advisory Committee (PSWAC) and the 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores technologies and public policy involving public safety telecommunications, analyzes the ramifications of particular issues and submits comments to governmental bodies with the objective of furthering public safety telecommunications worldwide. NPSTC serves as a standing forum for the exchange of ideas and information for effective public safety telecommunications.

The following 16 organizations serve on NPSTC's Governing Board:[2]

American Association of State Highway and Transportation Officials
American Radio Relay League
Association of Fish and Wildlife Agencies
Association of Public-Safety Communications Officials-International
Forestry Conservation Communications Association
International Association of Chiefs of Police
International Association of Emergency Managers
International Association of Fire Chiefs
International Municipal Signal Association
National Association of State Chief Information Officers
National Association of State Emergency Medical Services Officials
National Association of State Foresters
National Association of State Technology Directors
National Council of Statewide Interoperability Coordinators
National Emergency Number Association
National Sheriffs' Association

[2] These comments represent the views of the NPSTC Governing Board member organizations.

Several federal agencies are liaison members of NPSTC. These include the Department of Homeland Security (the Federal Emergency Management Agency, the Office of Emergency Communications, the Office for Interoperability and Compatibility, and the SAFECOM Program); Department of Commerce (National Telecommunications and Information Administration); Department of the Interior; and the Department of Justice (National Institute of Justice, Communications Technology Program). Also, Public Safety Europe is a liaison member. NPSTC has relationships with associate members: The Canadian Interoperability Technology Interest Group (CITIG) and the Utilities Technology Council (UTC), and affiliate members: The Alliance for Telecommunications Industry Solutions (ATIS), Open Mobile Alliance (OMA), Telecommunications Industry Association (TIA), TETRA Critical Communications Association (TCCA), and Project 25 Technology Interest Group (PTIG).

NPSTC Comments

In its Petition for Rulemaking submitted May 21, 2018, Radwin, Ltd. (Radwin) requests the Commission modify Section 15.407 of its rules to raise the power levels for point-to-multipoint (P2MP) unlicensed systems that emit multiple directional beams to be consistent with those for unlicensed point-to-point (P2P) systems. Radwin indicates that devices using sequential multiple directional beam technology are FCC certified and in use today in the Unlicensed National Information Infrastructure (UNII) bands. However, these devices are subject to power limits established for P2MP systems that are lower than the limits for UNII band P2P systems. Radwin notes the current approach for the UNII bands at 5 GHz is different than that for similar devices with multiple directional beam technology operating in the 2.4 GHz band. Radwin states that the rules at 2.4 GHz "recognize the unique characteristics of this technology and allow for more robust power

limits permitted for point-to-point devices in the same bands."[3] Citing Section 15.247 applicable to unlicensed operations at 2.4 GHz, Radwin states:

> The Commission determined that devices using **sequential** multiple directional beams could operate with an aggregate transmit output power (transmitted simultaneously on all beams) of up to 8 dB above the power limit allowed for individual beams.[4] [emphasis added]

However, Radwin requests that devices with either sequential **or simultaneous** multiple directional beams be treated as P2P links from the standpoint of power limits.

NPSTC notes that the actual reading of the Commission's rules in section 15.247 makes a distinction between systems with sequential and simultaneous multiple directional beams. Without conducting a rigorous engineering study, NPSTC believes such a distinction meets the common sense test as there likely would be greater aggregate power radiated with simultaneous beams than with sequential beams of the same per-beam power levels. The diagrams in the Radwin technical appendices which compare the radiation and interference patterns of sectorial, directional and multi beamforming systems appear to show the situation in which there is only one beam for the multi-beamforming system. It appears that these diagrams do not encompass the situation in which simultaneous multiple beams radiating in different directions would be used. Accordingly, NPSTC believes this is an area that needs further consideration and analysis should the Commission choose to initiate a rulemaking in response to Radwin's request.

Also, given Radwin's reliance on the Commission's previous actions on rules for 2.4 GHz as support for requested changes at 5 GHz, NPSTC believes any such rulemaking would need to examine any relevant differences in the overall technology requirements across the two bands, rather than just reviewing the specific rules related to P2MP and P2P systems. It may be that the overall

[3] Radwin petition at page 2.
[4] Radwin petition at page 5 and 6.

differences in the technology provide additional support for the Radwin request, or those differences could call into question the claim of no impact from the request. In any case, NPSTC believes the overall differences should be considered.

NPSTC also notes the Radwin request comes on the heels of a petition filed by Globalstar that notified the Commission it is experiencing a 2 dB rise in the noise floor in the 5 GHz spectrum in which it holds a license for uplinks.[5] The Globalstar petition includes measurements of the noise floor over the U.S. made from its satellite constellation. Globalstar indicated that it initiated its program to measure the noise level in its feeder uplink spectrum over the United States in May 2014, and that it first determined a baseline noise floor over the United States at 5096-5250 MHz. Subsequently, on a monthly basis, Globalstar conducted noise level measurements. The petition advised of the following results from these noise floor measurements:[6]

> Globalstar's measurements from May 2014 until February 2017 detected no increase in the noise level. Then, in February 2017, the first satellite measured a 1 dB increase at 5096-5250 MHz. Over the following months, six additional satellites detected a similar 1 dB increase. In March 2017, the first Globalstar satellite measured a 2 dB noise rise. By November 20, 2017, four other satellites had detected a similar 2 dB rise in the noise level. As of April 2018, six of the eight Globalstar satellites involved in this program were measuring a 2dB noise rise, with the other two satellites measuring a 1 dB noise rise, confirming that the noise level over the United States is now 1 to 2 dB higher than it was when the Commission adopted the *2014 5 GHz Order*. [footnotes omitted]

Accordingly, Globalstar petitioned the Commission to issue a Notice of Inquiry to assess further the rise in the noise floor and its causes.

NPSTC submitted comments July 6, 2018 supporting the Globalstar request. NPSTC advised that Globalstar service is used in both urban and wildland environments by first responders

[5] Petition for Notice of Inquiry submitted by Globalstar, Inc. May 21, 2018. The Commission placed the petition on public notice June 6, 2018 in Report number 3092 by the Consumer Governmental Affairs Bureau.
[6] Globalstar petition RM-11808 at page 11.

and that significant interference to that service could be detrimental to public safety. Also, NPSTC noted that the Commission increasingly expresses interest in spectrum sharing as a means to help satisfy the many types of communications that require access to spectrum, that sharing rules are often prospective when adopted, and that an assessment of sharing provisions based on actual experience would be beneficial.

Accordingly, NPSTC recommends the Commission consider the Radwin petition in the context of the Globalstar petition, rather than as a stand-alone issue. An assessment of the potential impact to the 5 GHz noise floor, if any, of Radwin's requested rule changes should be conducted by the Commission's Office of Engineering and Technology and/or by industry engineering firms if the Commission chooses to move forward with a rulemaking proceeding in response to Radwin's petition.

Conclusion

NPSTC neither specifically supports nor opposes the Radwin petition. However, NPSTC believes there are at least three key areas that the Commission should explore further, especially if it chooses to pursue a rulemaking as Radwin requests. These areas involve 1) differences in the overall technology between the 2.4 GHz and 5 GHz bands that could influence the impact, and not just the P2P/P2MP rules; 2) a comparison of the potential interference impact from simultaneous multiple beams vs. that from sequential multiple beams; and 3) the potential impact to the 5 GHz noise floor from Radwin's recommended rule changes. Regarding the noise floor issue, NPSTC recommends the Radwin petition be considered in the context of the recent Globalstar petition reporting a 2 dB rise in the noise floor, rather than as a stand-alone issue.

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July 30, 2018